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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,592	09/30/2003	Sergey Dzekunov	MAXC:014US	9928

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EXAMINER

FERNANDEZ, SUSAN EMILY

ART UNIT	PAPER NUMBER
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1651

DATE MAILED: 11/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/675,592	Applicant(s) DZEKUNOV, SERGEY	
	Examiner Susan E. Fernandez	Art Unit 1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 17-33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 5 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/24/04, 7/25/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-33 are pending.

Election/Restrictions

Applicant's election without traverse of Group I, claims 1-16, drawn to a method comprising effecting electroporation, in the reply filed on October 31, 2005, is acknowledged.

Claims 17-33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected inventions, there being no allowable generic or linking claim.

Claims 1-16 are examined on the merits to the extent they read on the elected subject matter.

Claim Objections

Claim 5 and 15 are objected to because of the following informalities: These claims recite "the peak and average power consumption" which is clearly referring to multiple power consumptions. Thus, "consumption" should be replaced with "consumptions". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 7 are rendered indefinite by the phrase, "substantially constant". The term "substantially" in claims 1 and 7 is a relative term which renders the claims indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Thus, claims 1-16 are rejected under 35 U.S.C. 112, second paragraph.

Claims 8-12 and 14 are indefinite because "the electrode" lacks antecedent basis. Parent claim 7 recites a pair of electrodes, thus it is unclear which of the two electrodes is "the electrode" referred to in the claims. Thus, claims 8-15 are rejected under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7, 8, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Muller et al. (WO 00/37628, English language equivalent US 6,492,175).

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Muller et al. teaches a method for electroporation wherein a sample is displaced through a channel, past electroporation electrodes which generate a spatially inhomogeneous electric field in the channel, thus anticipating claims 1, 7, and 8 under examination. See US 6,492,175, claims 14 and 16 and column 2, line 66 through column 3, line 14, in particular column 3, lines 8-10, which discloses the generation of an "inhomogeneous electric field". The electric field can be coupled to a DC source ('175, column 8, lines 54-60) or it can be coupled to an AC source, as Muller et al discloses an alternating field ('175, column 7, lines 61-67 through column 8, line 2). Furthermore, the electric field generated may be about 100V ('175, column 3, lines 39-43). Therefore, Muller et al. also anticipates claims 2, 3, and 11. A holding of anticipation is clearly required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al in view of Baumann et al. (US 6,368,851) or Acker (US 2004/0029240).

As discussed above, Muller et al. anticipates claims 1-3, 7, 8, and 11. However, Muller et al. does not expressly disclose displacement of electrodes.

Baumann et al. discloses an electroporation device wherein electrodes connected to an electric voltage source are moved with respect to a stationary specimen (see claims 4 and 9).

Acker discloses a method of electroporation wherein a target cell, which is considered within a sample, is placed into a sample gap between two electrodes which are displaced (claim 11). During electroporation, the target cell may be displaced as it changes orientation (page 9, paragraph [0124]). However, the sample is still considered stationary.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have modified the Muller invention such that the electrodes are displaced during electroporation while the sample being electroporated is displaced or maintained at a stationary position. One of ordinary skill in the art would have been motivated to do this since movement of the electrodes has been shown to be effective in electroporation (Baumann et al. and Acker) and it would have further contributed to generating an inhomogeneous electric field necessary to create negative dielectrophoresis required by the Muller invention. Furthermore, Acker points out that electroporation involving displacement of electrodes "...has the advantage of obtaining high yields of electroporated cells due in part to the ability to create randomly rotating cell conditions" (page 4, paragraph [0072]). Additionally, this method "...avoids repeated pulsing into already opened pores and possible destruction of the molecules or cells" which "enables maximum transfer rates of material into cells with minimum cell loss". One would have clearly been motivated to displace electrodes when performing electroporation taught by Muller et al., whether during electroporation the sample is in motion ('175, claim 16) as required by instant claim 10 or stationary ('175, claim 17) as required by instant claim 9.

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Muller et al. also does not disclose the power consumptions, duty cycles, and AC frequencies recited in claims 4-6, 12, and 14-16. Nevertheless, the selection of specific suitable peak and average power consumptions, duty cycles, and AC frequencies, including those claimed, clearly would have been an obvious matter of optimization on the part of the artisan of ordinary skill. Furthermore, though Muller et al. does not disclose specifics as to electrical power sources, it would have been obvious to have used any electrical power source, including a standard electrical wall outlet which is known as a common, accessible source. Thus, claim 13 is rendered obvious. A holding of obviousness is clearly required.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan E. Fernandez whose telephone number is (571) 272-3444. The examiner can normally be reached on Mon-Fri 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Susan E. Fernandez
Assistant Examiner
Art Unit 1651

sef



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PRIMARY EXAMINER